New Jersey Department of Health and Senior Services

HAZARDOUS SUBSTANCE FACT SHEET

Common Name: **LEAD CHROMATE**

CAS Number: 7758-97-6
DOT Number: None

RTK Substance number: 1102
Date: November 1995 Revision: September 2001

HAZARD SUMMARY

* **Lead Chromate** can affect you when breathed in and when swallowed.
* **Lead Chromate** is a CARCINOGEN--HANDLE WITH EXTREME CAUTION.
* Contact can irritate and burn the skin and eyes. Prolonged skin contact may cause blisters and deep ulcers.
* Breathing **Lead Chromate** can irritate the nose, throat and lungs.
* **Lead Chromate** can cause headache, irritability, reduced memory, disturbed sleep, and mood and personality changes.
* Repeated exposure can lead to *Lead* poisoning. Symptoms include metallic taste, poor appetite, weight loss, colic, upset stomach, nausea and vomiting, and muscle cramps.
* High exposure to **Lead Chromate** can cause a sore and/or hole in the "bone" dividing the inner nose (septum), sometimes with bleeding, discharge or crusting.
* **Lead Chromate** may cause a skin allergy. If allergy develops, very low future exposure can cause itching and a skin rash.
* High or repeated exposure may damage the nerves causing weakness, "pins and needles," and poor coordination in the arms and legs.
* High levels can cause muscle and joint pains and weakness.
* **Lead Chromate** may cause kidney and brain damage, and damage to blood cells causing anemia.

IDENTIFICATION

Lead Chromate is a yellow or orange sand-like powder. It is used as a pigment in paints, watercolors, printing, fabrics and decorating china.

REASON FOR CITATION

* **Lead Chromate** is on the Hazardous Substance List because it is regulated by OSHA and cited by ACGIH, DOT, NIOSH, NTP, DEP, IARC, HHAG and EPA.
* This chemical is on the Special Health Hazard Substance List because it is a **CARCINOGEN**.
* Definitions are provided on page 5.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information and training concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard, 1910.1200, requires private employers to provide similar training and information to their employees.

* Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and area air samples. You can obtain copies of sampling results from your employer. You have a legal right to this information under OSHA 1910.1020.
* If you think you are experiencing any work-related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.

WORKPLACE EXPOSURE LIMITS

The following exposure limits are for *inorganic Lead compounds* (measured as *Lead*):

OSHA: The legal airborne permissible exposure limit (PEL) is **0.05 mg/m^3** averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit is **0.1 mg/m^3** averaged over a 10-hour workshift.

ACGIH: The recommended airborne exposure limit is **0.05 mg/m^3** averaged over an 8-hour workshift.

The following exposure limits are for *Chromates* (measured as *Chromium*):

OSHA: The legal airborne permissible exposure limit (PEL) is **0.1 mg/m^3**, not to be exceeded at any time.

NIOSH: The recommended airborne exposure limit is **0.001 mg/m^3**, averaged over a 10-hour workshift.

ACGIH: The recommended airborne exposure limit is **0.012 mg/m^3** (for **Lead Chromate**) averaged over an 8-hour workshift.

* **Lead Chromate** is a CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.

WAYS OF REDUCING EXPOSURE

Although the primary route of exposure to **Lead Chromate** is through inhalation, you can be exposed to **Lead Chromate** if it gets into your mouth and is swallowed. To reduce exposure by all routes the following actions are recommended:

* Enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* A regulated, marked area should be established where **Lead Chromate** is handled, used, or stored.
* Wear protective work clothing including foot coverings.
* Wash thoroughly immediately after exposure to **Lead Chromate** and at the end of the workshift.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of **Lead Chromate** to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Lead Chromate**:

* Contact can irritate and burn the skin and eyes.
* Breathing **Lead Chromate** can irritate the nose, throat and lungs.
* **Lead Chromate** can cause headache, irritability, reduced memory, disturbed sleep, and mood and personality changes.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Lead Chromate** and can last for months or years:

Cancer Hazard

* **Lead Chromate** is a CARCINOGEN in humans. It has been shown to cause lung cancer.
* Many scientists believe there is no safe level of exposure to a carcinogen. Such substances may also have the potential for causing reproductive damage in humans.

Reproductive Hazard

* While **Lead Chromate** has not been tested for its ability to cause reproductive damage, it should be handled with caution since several related *Lead* compounds damage the developing fetus, decrease fertility in males and females, and cause sperm abnormalities in males.

Other Long-Term Effects

* Prolonged skin contact may cause blisters and deep ulcers.
* Repeated exposure can lead to *Lead* poisoning. Symptoms include metallic taste, poor appetite, weight loss, colic, upset stomach, nausea and vomiting, and muscle cramps.
* High exposure to **Lead Chromate** can cause a sore and/or hole in the "bone" dividing the inner nose (septum), sometimes with bleeding, discharge or crusting.
* **Lead Chromate** may cause a skin allergy. If allergy develops, very low future exposure can cause itching and a skin rash.
* High or repeated exposure may damage the nerves causing weakness, "pins and needles," and poor coordination in the arms and legs.
* High levels can cause muscle and joint pains and weakness.
* **Lead Chromate** may cause kidney and brain damage, and damage to blood cells causing anemia.
* Repeated exposure causes *Lead* to accumulate in the body. It can take years for the body to get rid of excess *Lead*.

MEDICAL

Medical Testing

Before first exposure and every 6 months thereafter, OSHA requires your employer to provide (for persons exposed to **30 micrograms** or more of *Lead* per cubic meter of air):

* Blood *Lead* test.
* ZPP test (a special test for effects of *Lead* on blood cells).

Before first exposure and yearly for exposed persons with blood *Lead* over **40 micrograms per 100 grams** of whole blood, OSHA also requires a complete medical history and exam with the above tests, and:

* Hemoglobin, hematocrit with complete blood count.
* Kidney function tests.
* Exam of the nervous system.
* EEG.
* Evaluation by a qualified allergist, including careful exposure history and special testing, may help diagnose skin allergy.

OSHA requires your employer to provide you and your doctor with a copy of the *Lead* Standard: 1910.1025 and 1926.62

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.1020.

Mixed Exposures

* Body exposures to *Lead* from hobbies using *Lead* solder or pigments, target practice and drinking moonshine made in *Leaded* containers will increase *Lead* levels. Repeated breathing or handling of *Leaded* gasoline may also add to body *Lead* levels.

Conditions Made Worse By Exposure

* Persons with a history of allergy to other *Chromium* compounds may have significant allergic symptoms to **Lead Chromate**.
* Cuts or scratches on exposed skin surfaces greatly increase the risk of developing skin ulcers from **Lead Chromate**.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, **ENGINEERING CONTROLS** are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Where possible, automatically transfer **Lead Chromate** from drums or other storage containers to process containers.
* Specific engineering controls are required for this chemical by OSHA. Refer to the OSHA Standard: 29 CFR 1910.1025 and 1926.62.

Good **WORK PRACTICES** can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by **Lead Chromate** should change into clean clothing promptly.
* Do not take contaminated work clothes home. Family members could be exposed.
* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to **Lead Chromate**.
* Eye wash fountains should be provided in the immediate work area for emergency use.
* If there is the possibility of skin exposure, emergency shower facilities should be provided.
* On skin contact with **Lead Chromate**, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted **Lead Chromate**, whether or not known skin contact has occurred.
* Do not eat, smoke, or drink where **Lead Chromate** is handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating, drinking, applying cosmetics, smoking, or using the toilet.
* Maintain all surfaces as free as possible from accumulations of **Lead Chromate** dust.
* Use a vacuum or a wet method to reduce dust during clean-up. DO NOT DRY SWEEP.
* When vacuuming, a high efficiency particulate air (HEPA) filter should be used, not a standard shop vacuum.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT. However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

OSHA 1910.132 requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with **Lead Chromate**. Wear protective gloves and clothing. Safety equipment suppliers/ manufacturers can provide recommendations on the most protective glove/clothing material for your operation.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.
* Safety equipment manufacturers recommend *Spunbonded Olefin* as a protective material.

Eye Protection

* Wear impact resistant eye protection with side shields or goggles.
* Wear a face shield along with goggles when working with corrosive, highly irritating or toxic substances.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

* Where the potential exists for exposure over **0.001 mg/m^3**, (as Chromium) use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.

* Exposure to **15 mg/m^3** (as *hexavalent Chromium*) is immediately dangerous to life and health. If the possibility of exposure above **15 mg/m^3** (as *hexavalent Chromium*) exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode.

QUESTIONS AND ANSWERS

Q: If I have acute health effects, will I later get chronic health effects?
A: Not always. Most chronic (long-term) effects result from repeated exposures to a chemical.

Q: Can I get long-term effects without ever having short-term effects?
A: Yes, because long-term effects can occur from repeated exposures to a chemical at levels not high enough to make you immediately sick.

Q: What are my chances of getting sick when I have been exposed to chemicals?
A: The likelihood of becoming sick from chemicals is increased as the amount of exposure increases. This is determined by the length of time and the amount of material to which someone is exposed.

Q: When are higher exposures more likely?
A: Conditions which increase risk of exposure include dust releasing operations (grinding, mixing, blasting, dumping, etc.), other physical and mechanical processes (heating, pouring, spraying, spills and evaporation from large surface areas such as open containers), and "confined space" exposures (working inside vats, reactors, boilers, small rooms, etc.).

Q: Is the risk of getting sick higher for workers than for community residents?
A: Yes. Exposures in the community, except possibly in cases of fires or spills, are usually much lower than those found in the workplace. However, people in the community may be exposed to contaminated water as well as to chemicals in the air over long periods. This may be a problem for children or people who are already ill.

Q: Don't all chemicals cause cancer?
A: No. Most chemicals tested by scientists are not cancer-causing.

The following information is available from:

New Jersey Department of Health and Senior Services
Occupational Health Service
PO Box 360
Trenton, NJ 08625-0360
(609) 984-1863
(609) 292-5677 (fax)

Web address: http://www.state.nj.us/health/eoh/odisweb/

Industrial Hygiene Information

Industrial hygienists are available to answer your questions regarding the control of chemical exposures using exhaust ventilation, special work practices, good housekeeping, good hygiene practices, and personal protective equipment including respirators. In addition, they can help to interpret the results of industrial hygiene survey data.

Medical Evaluation

If you think you are becoming sick because of exposure to chemicals at your workplace, you may call personnel at the Department of Health and Senior Services, Occupational Health Service, who can help you find the information you need.

Public Presentations

Presentations and educational programs on occupational health or the Right to Know Act can be organized for labor unions, trade associations and other groups.

Right to Know Information Resources

The Right to Know Infoline (609) 984-2202 can answer questions about the identity and potential health effects of chemicals, list of educational materials in occupational health, references used to prepare the Fact Sheets, preparation of the Right to Know Survey, education and training programs, labeling requirements, and general information regarding the Right to Know Act. Violations of the law should be reported to (609) 984-2202.

DEFINITIONS

ACGIH is the American Conference of Governmental Industrial Hygienists. It recommends upper limits (called TLVs) for exposure to workplace chemicals.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is assigned by the Chemical Abstracts Service to identify a specific chemical.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes irreversible damage to human tissue or containers.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

HHAG is the Human Health Assessment Group of the federal EPA.

IARC is the International Agency for Research on Cancer, a scientific group that classifies chemicals according to their cancer-causing potential.

A **miscible** substance is a liquid or gas that will evenly dissolve in another.

mg/m^3 means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NAERG is the North American Emergency Response Guidebook. It was jointly developed by Transport Canada, the United States Department of Transportation and the Secretariat of Communications and Transportation of Mexico. It is a guide for first responders to quickly identify the specific or generic hazards of material involved in a transportation incident, and to protect themselves and the general public during the initial response phase of the incident.

NCI is the National Cancer Institute, a federal agency that determines the cancer-causing potential of chemicals.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEL is the Permissible Exposure Limit which is enforceable by the Occupational Safety and Health Administration.

PIH is a DOT designation for chemicals which are Poison Inhalation Hazards.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

TLV is the Threshold Limit Value, the workplace exposure limit recommended by ACGIH.

The **vapor pressure** is a measure of how readily a liquid or a solid mixes with air at its surface. A higher vapor pressure indicates a higher concentration of the substance in air and therefore increases the likelihood of breathing it in.

>>>>>>>>>>>>>>>>> EMERGENCY INFORMATION <<<<<<<<<<<<<<<<<

Common Name: **LEAD CHROMATE**
DOT Number: **None**
NAERG Code: **No Citation**
CAS Number: **7758-97-6**

Hazard rating	NJDHSS	NFPA
FLAMMABILITY	Not Found	Not Rated
REACTIVITY	Not Found	Not Rated
CARCINOGEN POISONOUS FUMES ARE PRODUCED IN FIRE		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* Extinguish fire using an agent suitable for type of surrounding fire. **Lead Chromate** itself does not burn.
* POISONOUS FUMES ARE PRODUCED IN FIRE including *Lead*.
* **Lead Chromate** may ignite combustibles (wood, paper and oil).
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If **Lead Chromate** is spilled, take the following steps:

* Evacuate persons not wearing protective equipment from area of spill until clean-up is complete.
* Collect powdered material in the most convenient and safe manner and deposit in sealed containers.
* Ventilate and wash area after clean-up is complete.
* It may be necessary to contain and dispose of **Lead Chromate** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.
* If employees are required to clean-up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

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FOR LARGE SPILLS AND FIRES immediately call your fire department. You can request emergency information from the following:

CHEMTREC: (800) 424-9300
NJDEP HOTLINE: 1-877-WARN-DEP

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HANDLING AND STORAGE

* Prior to working with **Lead Chromate** you should be trained on its proper handling and storage.
* A regulated, marked area should be established where **Lead Chromate** is handled, used, or stored.
* **Lead Chromate** must be stored to avoid contact with AZODYES and FERRIC FERROCYANIDE since violent reactions occur.
* **Lead Chromate** is not compatible with COMBUSTIBLES; HYDRAZINE; SULFUR; OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); CHEMICALLY ACTIVE METALS (such as POTASSIUM, SODIUM, MAGNESIUM and ZINC); ALUMINUM; IRON; ORGANIC COMPOUNDS; and TANTALUM.
* Store in tightly closed containers in a cool, well-ventilated area away from METALS.

FIRST AID

In NJ, for POISON INFORMATION call 1-800-764-7661

Eye Contact

* Immediately flush with large amounts of water. Continue without stopping for at least 30 minutes, occasionally lifting upper and lower lids. Seek medical attention immediately.

Skin Contact

* Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Breathing

* Remove the person from exposure.
* Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Water Solubility: Insoluble

OTHER COMMONLY USED NAMES

Chemical Name:

Chromic Acid, Lead (2+) Salt (1:1)

Other Names:

Chrome Yellow; Lemon Yellow, Plumbous Chromate

NEW JERSEY DEPARTMENT OF HEALTH AND
SENIOR SERVICES
Right to Know Program
PO Box 368, Trenton, NJ 08625-0368
(609) 984-2202 H4985
